PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IB2005/050472	04.02.2005	06.02.2004

International Patent Classification (IPC) or both national classification and IPC
H04L12/56

Applicant
KONINKLIJKE PHILIPS ELECTRONICS, N.V.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:

European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Müller, N

Telephone No. +49 89 2399-7144

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/IB2005/050472

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material:

   ☐ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material:

   ☐ in written format

   ☐ in computer readable form

   c. time of filing/furnishing:

   ☐ contained in the international application as filed.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	2-14,16-19
	No:	Claims	1,15
Inventive step (IS)	Yes:	Claims	4,16-19
	No:	Claims	1-3,5-15
Industrial applicability (IA)	Yes:	Claims	1-19
	No:	Claims	

2. Citations and explanations

see separate sheet

1. The following documents are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: US-A-5 590 396 (HENRY ET AL) 31 December 1996 (1996-12-31)
D2: ITZIK KITROSER ET AL: "IEEE 802.16e Sleep Mode" IEEE C802.16E-03/15RL, 11 March 2003 (2003-03-11), pages 1-9, XP002295557
D3: EP-A-1 193 985 (TEXAS INSTRUMENTS INC) 3 April 2002 (2002-04-03)

2. Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

2.1 Document **D1** (in particular column 4, lines 2 to 6; lines 17 to 23; and lines 40 to 43) discloses, according to **all** features of **claim 1**, a method for saving power in a wireless communication network including a plurality of devices (see element "12" in figure 1 and 2), comprising the steps of:

a device announcing a sleep period in a beacon of the device as an announcing device (see column 4, lines 40 to 43; it should be noted that, according to D1, the announcement is a request to enter a deep-sleep mode, ie. hibernation mode);

the announcing device hibernating in a hibernation mode as a hibernating device during the announced sleep period wherein the device does not transmit a beacon during the sleep period (see column 4, lines 2 to 6; and lines 17 to 23; it should be noted, that by entering hibernation mode the device does reduce control communications (ie. sending and receiving beacons) with the wireless system).

The subject-matter of claim 1 is therefore **not new** (see Article 33 (2) PCT).

It should furthermore be noted that even if the Applicant intended to argue novelty of claim 1, based on a slightly different interpretation of the wording of document **D1**, the subject-matter of this claim **would not involve an inventive step** (see Article 33 (3) PCT) having regard to the disclosure of document **D1** and the normal knowledge of a person skilled in the art of communication networks and corresponding power saving techniques, see eg. document **D2** (in particular page 3, chapters 2.2 and 2.3),

which describes a similar method, wherein a device announces a hibernation/sleep mode.

2.2 The same considerations as made in paragraph 2.1 above regarding claim 1 are also valid for **independent claim 15** since this claim includes the same feature combination as claim 1 in terms of a claim relating to a communication network.

The subject-matter of claim 15 therefore is **neither new** (see Article 33 (2) PCT) **nor does it involve an inventive step** (see Article 33 (3) PCT).

2.3 However, the **independent claim 16** relates to a wireless device that saves power by entering a hibernation mode comprising means for sending and receiving beacon frames announcing the intention to hibernate. According to the subject-matter of claim 16, the announcement includes a start time and a period of the hibernation mode. Furthermore, the device maintains a hibernation table from hibernation announcements received with beacons from other devices.

Such a wireless device, as claimed, is neither taught, nor rendered obvious, alone or in combination, by the prior art documents cited in the Search Report. In document **D1** the device sends an announcement to the network for requesting allowance to enter a hibernation mode without announcing the start and duration of such a mode. In **D3** the device announces the start of a hibernation mode in a first beacon, and, when waking up, the end of the hibernation mode in a second beacon. According to **D2**, the device requests the allowance to enter a hibernation mode, the request including the requested start and duration of such a mode. However, **D2** discloses a centralized communication system, ie. the device communicates with a central network node. Therefore, the device does not collect hibernation information of other devices in a hibernation table.

Claim 16 is therefore novel and considered to involve the required inventive step, Articles 33 (2) and (3) PCT. However, the statements of paragraph 3.2 below should be observed.

2.4 Furthermore, the **dependent claims 2, 3, and 5 to 14** do not appear to contain any

additional features which, in combination with the features of any claim to which they refer, meet the requirements of PCT with respect to **inventive step** (see Article 33 (3) PCT), for the reason that the subject-matter of said claims is either in principle directly derivable from the disclosures of document **D1** (see in particular column 4, lines 2 to 6; and lines 17 to 23), document **D2** (see in particular page 3, chapters 2.2 and 2.3) **or** represents simple design details which are generally known to the person skilled in the field of communication networks and corresponding power saving techniques.

Due to above reasons, claims 2, 3, and 5 to 14 do **not** meet the requirements of Article 33 (1) and (3) PCT.

2.5 The subject-matter of **claims 1 to 19** is industrially applicable, see Article 33 (4) PCT.

3. Further remarks

3.1 The vague and imprecise statement in the description on page 4, line 33 ("...spirit...") implies that the subject-matter for which protection is sought may be different to that defined by the claims, thereby resulting in lack of clarity (Article 6 PCT) when used to interpret them.

3.2 It is clear from the description on page 1, lines 5 to 8; page 1. lines 23 to 29; page 2, line 22, to page 3, line 10; page 3, lines 24 to 30; and page 3, line 33 to page 4, line 6 that the following features are **essential** to the definition of the invention:

(1) the wireless network is an ad hoc Wireless Personal Area Network WPAN;
(2) the time is divided into a sequence of superframes;
(3) all devices transmit their own beacon frame during a beacon phase/period in every superframe, except in a hibernation mode;
(4) in a standard power-save state, each device is awake in each superframe during its beacon phase;
(5) compared to the standard power-save state, a device in the hibernation mode sleeps for more than one superframe in a row without waking up for the

intermediate beacon phases, ie. it suspends sending beacons for a number of superframes.

Since independent claims 1, 15 and 16 do not contain these features they do not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

3.3 The feature "...**the** beacon hibernation information ..." in **claim 7** is not clear, see Article 6 PCT, since said feature has not been previously defined in said claim or in any claim on which said claim depends, ie. there is no antecedent for said feature.

3.4 The independent claims 1, 15 and 16 are not drafted in the proper **two-part "characterised" form** recommended by Rule 6.3 (b),(I),(ii) PCT, having a preamble that correctly reflects the nearest prior art, presumably that represented by the above noted document **D1**.

3.5 The requirements of Rule 5.1 (a) (ii) PCT are not met, since the cited documents **D1 and D2** should be acknowledged and briefly discussed in the opening part of the description, preferably in such a way that the inventive merit of what is claimed can be readily understood.